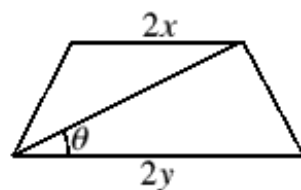




14. The parallel sides of a trapezium have lengths $2x$ and $2y$ respectively. The diagonals are equal in length, and a diagonal makes an angle θ with the parallel sides, as shown. What is the length of each diagonal?



- A $x + y$ B $\frac{x + y}{\sin \theta}$ C $(x + y) \cos \theta$ D $(x + y) \tan \theta$ E $\frac{x + y}{\cos \theta}$

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14. E Drop perpendiculars from the top vertices to the bottom line. The distance from the foot to the nearer base vertex is $\frac{1}{2}(2y - 2x) = y - x$. So the distance to the further base vertex is $2y - (y - x) = y + x$. Hence $\cos \theta = \frac{x + y}{d}$ where d is the length of the diagonal.

